



Subject card

Subject name and code	Economic environment, PG_00062731						
Field of study	Technologies for Industry 5.0						
Date of commencement of studies	October 2024		Academic year of realisation of subject		2025/2026		
Education level	first-cycle studies		Subject group		Obligatory subject group in the field of study Humanistic-social subject group		
Mode of study	Full-time studies		Mode of delivery		at the university		
Year of study	2		Language of instruction		Polish		
Semester of study	3		ECTS credits		2.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Division of Theoretical Physics and Quantum Informaton -> Institute of Physics and Applied Computer Science -> Faculty of Applied Physics and Mathematics						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Patryk Jasik				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	0.0	0.0	30
	E-learning hours included: 0.0						
Learning activity and number of study hours	Learning activity	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	Number of study hours	30		2.0		18.0	50
Subject objectives	Gaining knowledge in the use of cutting-edge technologies in Industry 5.0.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_W04] demonstrates knowledge necessary to understand non-technical (legal, economic, ethical, environmental) conditions of engineering activities in the scope directly or indirectly related to the industrial revolution		The student demonstrates the knowledge necessary to understand non-technical (legal, economic, ethical, environmental) conditions of engineering activities directly or indirectly related to the Industrial Revolution 5.0.		[SW3] Assessment of knowledge contained in written work and projects		
	[K6_W03] demonstrates knowledge on materials used in industrial technologies, their structure and fabrication, knows the principles of conducting research, analyzing it and creating technical documentation		The student demonstrates knowledge of technologies used in Industry 5.0, understands the principles of conducting research, performing analysis, and creating technical documentation.		[SW3] Assessment of knowledge contained in written work and projects		

Subject contents	<p>Discussion on the Definition of Industry 5.0</p> <p>Industry 5.0 is the next stage of the industrial revolution, focusing on harmonious collaboration between humans and machines, emphasizing product personalization, sustainability, and the integration of advanced technologies with elements of human creativity and innovation.</p> <p>Examples of Technologies Used in Industry 5.0</p> <ol style="list-style-type: none"> 1. Internet of Things (IoT) 2. Artificial Intelligence (AI) 3. Collaborative Robotics (Cobots) 4. Blockchain 5. 3D Printing 6. Augmented and Virtual Reality (AR/VR) 7. Big Data and Advanced Data Analytics 8. 5G Networks 9. Sustainable Development Technologies <p>Course "Economic Environment"</p> <p>As part of the course "Economic Environment," students will explore the broad economic and business context in which Industry 5.0 technologies operate. Students will have the opportunity to participate in meetings with representatives from corporations, companies, and small and medium-sized enterprises that implement and utilize Industry 5.0 technologies. These meetings will take place both at the university and through study visits to these enterprises, allowing students to directly engage with the practical applications of the discussed technologies and understand their impact on the modern economic environment.</p>		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Report on the Use of Industry 5.0 Technologies in a Selected Enterprise.	60.0%	100.0%
Recommended reading	Basic literature	Armando Martin, Industry 5.0. Introductory guide to the fifth industrial revolution, Editoriale Delfino	
	Supplementary literature	Kenneth Cukier, Victor Mayer-Schonberger, "Big Data :A Revolution That Will Transform How We Live, Work, and Think", Eamon Dolan/Houghton Mifflin Harcourt Eamon Dolan/Houghton Mifflin Harcourt	
	eResources addresses	Adresy na platformie eNauczanie:	

Example issues/ example questions/ tasks being completed	<p>Guidelines for Creating a Report on the Use of Industry 5.0 Technologies in a Selected Enterprise</p> <ol style="list-style-type: none"> 1. <p>Introduction</p> <ul style="list-style-type: none"> • Description of the Enterprise: Provide a brief description of the selected enterprise, including its history, main products or services, and the sector in which it operates. • Purpose of the Report: Explain the purpose of the report, which is to analyze the use of Industry 5.0 technologies in the enterprise. 2. <p>Overview of Industry 5.0 Technologies in the Enterprise</p> <ul style="list-style-type: none"> • Description of Implemented Technologies: Identify and describe the Industry 5.0 technologies implemented in the enterprise. • Purpose of Implementation: Explain the goals the enterprise aimed to achieve by implementing these technologies (e.g., increased efficiency, improved product quality, cost reduction, sustainable development). 3. <p>Analysis of the Impact of Technologies on the Enterprise's Operations</p> <ul style="list-style-type: none"> • Impact on Business Processes: Analyze how the implemented technologies have affected key business processes in the enterprise (e.g., production, logistics, resource management). • Benefits and Savings: Determine the financial and operational benefits and savings the enterprise has achieved through the use of Industry 5.0 technologies. • Impact on Employees: Investigate how these technologies have impacted employees, their roles and skills, and the organizational culture. 4. <p>Challenges and Barriers</p> <ul style="list-style-type: none"> • Identification of Problems: Identify the main challenges and barriers the enterprise faced during the implementation of Industry 5.0 technologies (e.g., implementation costs, lack of skills, employee resistance). • Mitigation Strategies: Describe the strategies and actions taken by the enterprise to overcome these challenges and barriers. 5. <p>Conclusions and Summary: Present the key findings from the analysis, highlighting the main benefits and challenges associated with the use of Industry 5.0 technologies in the enterprise.</p>
Work placement	Not applicable

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